



UNITED STATES PATENT AND TRADEMARK OFFICE

SP

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------|-------------|----------------------|---------------------|------------------|
| 10/762,331 | 01/23/2004 | Doo-Young Ryu | 1594.1315 | 4947 |
| 21171 | 7590 | 03/24/2005 | EXAMINER | |
| STAAS & HALSEY LLP | | | LU, JIPING | |
| SUITE 700 | | | ART UNIT | |
| 1201 NEW YORK AVENUE, N.W. | | | PAPER NUMBER | |
| WASHINGTON, DC 20005 | | | 3749 | |

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|------------------------------------------|--|
| Office Action Summary | Application No. 10/762,331 | Applicant(s) RYU, DOO-YOUNG <i>CD</i> | |
| | Examiner Jiping Lu | Art Unit 3749 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-8 and 10-18 is/are allowed.
- 6) ☒ Claim(s) 19-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1, 3-8, 10-20 are now in the case.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U. S. Pat. 5,983,520) in view of Dinh (U. S. Pat. 6,742,284).

Kim et al show a drum washing machine with an air duct 18 and blower 20. A clothes-drying unit has a heat recovery system 22, 23. Heat from temperature humid air exhausted out of the water tub 4 and combined with the recovered heat with low temperature dry air 23 flowing from an area around a condensing nozzle 24. However, Kim does not show a heat pipe recovery. Dinh shows a heat pipe heat recovery system 12 same as the applicant's. The wet or humid waste heat 20 is recovered and combined with the low temperature dry air 18. The resultant dry air 18 is directed to the machine. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the washing machine of Kim et al with a heat pipe as taught by Dinh in order to recover waste heat and save energy.

4. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (U. S. Pat. 5,983,520) in view of Maisotsenko et al (U. S. Pat. 6,497,107).

Kim et al show a drum washing machine with an air duct 18 and blower 20. A clothes-drying unit has a heat recovery system 22, 23. Heat from temperature humid air exhausted out of the water tub 4 and combined with the recovered heat with low temperature dry air 23 flowing

Art Unit: 3749

from an area around a condensing nozzle 24. However, Kim does not show a heat pipe recovery. Maisotsenko et al show a heat pipe heat recovery system 69 same as the applicant's. The wet or humid waste heat 4 is recovered and combined with the low temperature dry air 4. The resultant dry air 67 is directed to the machine. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the washing machine of Kim et al with a heat pipe as taught by Maisotsenko et al. in order to recover waste heat and save energy.

Allowable Subject Matter

5. Claims 1, 3-8, 10-18 are allowed.

Response to Arguments

6. Applicant's arguments filed 12/27/2004 have been fully considered but they are not persuasive to overcome the rejection. First, broad claims 19-20 fail to define over the prior art references. Please point exactly which limitation(s) from the claims that the prior art references do not teach. Second, it should be noted that to use heat pipe to recover waste heat is well known in the heating art in order to conserve energy. Third, the applicant argued in pages 6-9 of the Remarks that there is no teaching to combine the patents to Kim and Ding. The examiner disagrees. The patent to Kim et al clearly shows a drum washing machine with an air duct 18 and blower 20. A clothes-drying unit has a heat recovery system 22, 23. Heat from temperature humid air exhausted out of the water tub 4 and combined with the recovered heat with low temperature dry air 23 flowing from an area around a condensing nozzle 24. The patent to Dinh

Art Unit: 3749

clearly shows a heat pipe heat recovery system 12 same as the applicant's. The wet or humid waste heat 20 is recovered and combined with the low temperature dry air 18. The resultant dry air 18 is directed to the machine. Therefore, it is the examiner's position that in view of the combined teachings of the references, one skilled in the art would be able to derive the broadly claimed heat recovery system in claims 19 and 20 in order to conserve energy. Again, the motivation is to conserve energy. This is well known in the art. Fourth, on pages 9-10 of the Remarks, the applicant argued that there are no teachings to combine the patents to Kim and Maisotsenko. The examiner also disagrees with the applicant. The patent to Kim et al clearly shows a drum washing machine with an air duct 18 and blower 20. A clothes-drying unit has a heat recovery system 22, 23. Heat from temperature humid air exhausted out of the water tub 4 and combined with the recovered heat with low temperature dry air 23 flowing from an area around a condensing nozzle 24. The patent to Maisotsenko et al clearly shows a heat pipe heat recovery system 69 same as the applicant's. The wet or humid waste heat 4 is recovered and combined with the low temperature dry air 4. The resultant dry air 67 is directed to the machine. Therefore, it is the examiner's position that in view of the combined teachings of the patents to Kim and Maisotsenko, one skilled in the art would be able to derive the broadly claimed heat recovery system in claims 19 and 20 in order to conserve energy. Again, the motivation is to conserve energy. This is well known in the art.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

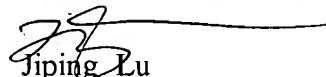
Art Unit: 3749

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jiping Lu whose telephone number is 571 272 4878. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 571 272-4877. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jiping Lu
Primary Examiner
Art Unit 3749

J. L.